

A REVISION OF *SAULOSTOMUS* WATERHOUSE AND DESCRIPTION OF A NEW
RUTELINE GENUS (SCARABAEIDAE, COLEOPTERA).

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(Thirty-six Text-figures.)

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Synopsis.

Saulostomus weiskei Ohaus, *collaris* (Blackburn) and *minicus* Lea are not considered by the author to be congeneric with *S. villosus* Waterh., the type species of the genus. These, and three newly described species (*excisus*, *norsemanae*, *halei*) form a distinct but closely related generic group for which the name *Eosaulostomus* is proposed. The female of *S. villosus* is described for the first time, a plesioallotype being designated.

INTRODUCTION.

Waterhouse (1878) proposed the genus *Saulostomus* for a single species (*villosus*). Ohaus (1904, 1935) subsequently described three additional species (*felschei*, *weiskei* and *striatus*), and Blackburn (1909) transferred to it his species *collaris* which he had earlier placed in the Dynastine genus *Ancurystypus*. Lea (1919, 1920) added the species *minicus* and *brunneoviridis*.

Although examples of neither *felschei* nor *striatus* have been examined, descriptions of these species and examination of material of the remaining species force the writer to the conclusion that only *brunneoviridis*, *felschei* and *striatus* can be considered as congeneric with the type species, *villosus*. The species *collaris*, *minicus* and *weiskei*, with the three new species herein described, form a distinct generic group for which the name *Eosaulostomus* is proposed. This generic division was foreshadowed by Blackburn, who wrote (1909): "I think it (*collaris*) must be regarded as representing an undescribed Rutelid genus, but it is so close to *Saulostomus* that it will be best to refer it to that genus provisionally. Its tarsi are evidently longer than those of *S. villosus* Waterh. (the type of the genus) but this appears to be the case also in some species which have been attributed to *Saulostomus* by Ohaus . . ."

The female of *villosus* has not been described, this sex being very rare in collections. One was obtained when the author reared field-collected larvae in the laboratory, and another was found among unidentified material in the Division of Entomology Museum, C.S.I.R.O., Canberra. The latter specimen has been designated as a plesioallotype.

The two genera may be distinguished as follows:

Dorsal surface bearing appreciable, sometimes conspicuous, vestiture; often with a metallic green lustre. Mandibles concealed beneath, or just level with margin of clypeus, the latter usually trapezoidal. Fore tibia with lateral teeth small and not deeply separated, confined to its distal half; tarsus short, stout, segments 1-4 together equal to or scarcely longer than segment 5. *Saulostomus* Waterh.

Dorsal surface glabrous or at most with sparse hairs near lateral margins of pronotum, without a metallic lustre except rarely on pygidium. Mandibles exposed or concealed beneath clypeus, the latter rounded. Fore tibia with sharp, deeply separated lateral teeth, extending on to its proximal half; tarsus slender, elongate, with segments 1-4 together much longer than segment 5. *Eosaulostomus*, gen nov.

Genus *SAULOSTOMUS* Waterhouse.

Saulostomus Waterh., 1878, *Trans. ent. Soc. Lond.*: 225. Ohaus, 1904, *Stett. ent. Ztg.*

LXV: 68. 153. Carne, 1954, *Proc. R. ent. Soc. (B)* 23: 36.

Type species, *Saulostomus villosus* Waterh. (by monotypy).

Waterhouse's characterization of the genus reads as follows:

"Mentum narrowed at the insertion of the palpi, with the anterior margin truncate. Labium with the margin gently arcuate and not produced in the middle. Tarsi rather

short and robust, the first four joints subequal, scarcely as long as broad, the first joint a little the longest. Claws simple. Antennae 10-jointed. Elytra with a membranous border."

*Key to the species of the genus Saulostomus Waterh.**

1. Dorsal surface uniformly reddish-brown 2.
- Dorsal surface, especially of pronotum, with a metallic green lustre 3.
- 2(1). Elytral intervals smooth, impunctate, glossy. Distal fore tibial tooth conspicuously elongate. Length c. 11.5 mm. Qld. 1. *striatus* Ohaus
- Elytral intervals wrinkled, punctate, not glossy. Distal fore tibial tooth not notably elongate. Length 11-14 mm. N.S.W., Vic., Tas. 2. *villosus* Waterh..
- 3(1). Body clothed in yellow or reddish-yellow hairs; clypeus semicircular; basolateral pronotal angles rounded, disc closely punctate; pygidium with long erect hairs; 1st segment of hind tarsus almost twice length of 2nd. Length c. 12.5 mm. Aust. 3. *felschei* Ohaus
- Body clothed in white decumbent hairs, with some sparse erect pale yellow hairs on frons, sides of pronotum, elytra and pygidium. Clypeus trapezoidal; pronotum with basal angles well defined, disc rather sparsely punctate in middle; pygidium with both long erect and short decumbent hairs. Hind tarsus with 1st and 2nd segments subequal in length. Length 13-15.5 mm. N.S.W. 4. *brunneoviridis* Lea.

1. SAULOSTOMUS STRIATUS Ohaus.

Saulostomus striatus Ohaus, 1935, *Deutsch. ent. Ztg.*: 126.

The following is a free translation from the German description:

"Most closely related to *S. felschei* Ohs., a little smaller and more oval, both dorsal and ventral surfaces bright reddish-brown, shining, without metallic lustre; dorsally only the sides of the pronotum and the scutellum are covered with dense hairs, elsewhere the hair is sparse. Ventral surface and legs covered with long dense greyish-yellow hair. Clypeus with sides parallel, the edges black, emarginate; disc of clypeus and frons with large confluent punctures, vertex with smaller discrete punctures, these bearing short erect yellow hairs adjacent to the large eyes and behind the scarcely discernible clypeofrontal suture.

"Pronotum rather low convex, sides widened in the middle, anterolateral angles slightly produced, basolateral angles not rounded, with well defined basal ridge, without basolateral compressions. Surface with strongly impressed discrete punctures, mostly confluent at sides. Scutellum densely covered with close lying yellowish hair. Elytra with deeply impressed sutural striae, intervals impunctate, convex and hence brilliantly glossy, striae with small but deeply impressed punctures, many bearing short bristle-like hairs.

"Pygidium slightly convex, closely and finely scratched, slightly shining, covered with short decumbent greyish-yellow hairs, with long yellow bristle-like hairs at sides and apex. Abdomen with close lying hair, thorax and legs covered with longer and more erect grey hair. Legs strong, the three fore-tibial teeth evenly spaced, the apical tooth elongate and strong; claws simple.

"Antennae 10-jointed, club as long as shaft. Mouthparts poorly developed, labrum almost semicircular, apices of mandibles strongly narrowed, their basal teeth with only a few (4-5) furrows; maxilla with three movable bristles like those of *S. felschei*, the last segment of the palp a little thicker however; anterior edge of labrum equally as broad as base, projecting slightly forward in middle. Forceps quite similar to those of all other species of the genus, showing very few specific characters, as with most other species of the tribe.

"Length $11\frac{1}{2}$, width 6 mm. Queensland, without precise locality."

2. SAULOSTOMUS VILLOSUS Waterhouse.

(Text-figs. 13, 21, 30.)

Saulostomus villosus Waterh., 1878, *Trans. ent. Soc. Lond.*: 225. Ohaus, 1893, *Stett. ent. Ztg.*, LIX: 39; 1904, *loc. cit.*, LXV: 154.

Waterhouse's description reads as follows:

"Clypeus pitchy-yellow, rather thickly and distinctly punctured, quadrangular, a little transverse, the margins reflexed, finely margined with brown. Thorax one-third

* Key characters for *striatus* and *felschei* drawn from original descriptions.

broader than long, convex, shining, clothed with long hair, not very thickly but rather strongly punctured, the sides gently rounded, the base sinuate on each side. Scutellum with a few punctures. Elytra with 4 pairs of striae, those at the sides rather obsolete, the surface of the interstices very uneven. The underside of the insect is clothed in



Text-figures 1-21.

1, *Eosaulostomus excisus*, sp. nov.: paratype ♂, genitalia, dorsal. 2, *E. collaris* (Blackb.): ♂ genitalia, dorsal. 3, *E. norsemanae*, sp. nov.: paratype ♂, genitalia, dorsal. 4, *E. weiskei* (Ohs.): paratype ♂, genitalia, dorsal. 5, *E. mimicus* (Lea): paratype ♂, genitalia, dorsal. 6, *E. excisus*, sp. nov.: paratype ♂, left antennal club, inner face. 7, *E. collaris* (Blackb.): ♂, left antennal club, inner face. 8, *E. norsemanae*, sp. nov.: paratype ♂, left antennal club, inner face. 9, *E. halei*, sp. nov.: paratype ♂, right antennal club, inner face. 10, *E. weiskei* (Ohs.): cotype ♂, right antennal club, inner face. 11, *E. mimicus* (Lea): cotype ♂, left antennal club, inner face. 12, *Saulostomus brunneoviridis* Lea: type ♂, left antennal club, inner face. 13, *S. villosus* Waterh.: ♀, antennae right and left (aberrant). 14, *Eosaulostomus excisus*, sp. nov.: paratype ♂, left maxilla, ventral. 15, *E. halei*, sp. nov.: paratype ♂, left maxilla, ventral. 16, *E. excisus*, sp. nov.: paratype ♂, left fore tibia. 17, *E. collaris* (Blackb.): ♂, left fore tibia. 18, *E. norsemanae*, sp. nov.: paratype ♂, left fore tibia. 19, *E. halei*, sp. nov.: paratype ♂, left fore tibia. 20, *E. weiskei* (Ohs.): cotype ♂, left fore tibia. 21, *Saulostomus brunneoviridis* Lea: type ♂, left fore tibia and tarsus.

long, thick pubescence. The points of the teeth on the anterior tibiae, and the spines on the legs are pitchy. Hab. Tasmania; Melbourne."

The following notes may be added to Waterhouse's description of the male: antennae with club longer than shaft, setose on inner face; ocular canthi exceptionally short and narrow; clypeofrontal suture transverse. Frons bearing setae on its anterior and lateral margins, with the disc almost glabrous in middle. Pronotum with anterolateral angles obtusely rounded, but with basolateral angles well defined, disc with a weak mediolongitudinal impression. Elytral intervals, as well as striae, with setiferous punctures. Pygidium clothed with both short decumbent, and much longer erect hairs. Fore tibia (Text-fig. 21) with lateral teeth evenly spaced, crowded into its distal half; tarsus short and stout, with segments 1-4 together scarcely longer than segment 5.

♀: compared with ♂, antennae much reduced, club much shorter than shaft (sometimes only 2-segmented, the 8th and 9th segments being partially or completely fused, as in Text-fig. 13). Pronotum more transverse, more convex, widest in anterior half, disc less abundantly clothed. Elytra dilated posteriorly; fore tibia with teeth more slender and acute: fore tarsus (Text-fig. 30) more slender, the larger claw distinctly toothed.

Plesioallotype ♀: 3 m. S.W. of Smithton, Tas., 7.1.48, K.H.L. Key and P. B. Carne. 3610. (Division of Entomology Museum, C.S.I.R.O., Canberra.)

Material examined: ♂♀, 12 m. N.W. of Adaminaby, N.S.W., coll. as larva, adult em. 15.11.48. P. B. Carne; ♂, Melbourne, G. F. Hill; ♂, Appollo Bay, Vic., Coghill 5.1.06; ♂, 16 m. SSW of Bonang, Vic., coll. as larva, adult em. 14.10.49. P. B. Carne; ♂, 13 m. S.E. of Nimmitabel, N.S.W., coll. as larva, adult em. 7.11.48, P. B. Carne; ♂, 4 m. ESE of Meeniyan, Vic., coll. as larva, adult em. 11.11.49, P. B. Carne; ♂, Yaouk, N.S.W., F.H.T. 1.31. (Division of Entomology Museum, C.S.I.R.O., Canberra.)

3. SAULOSTOMUS FELSCHEI Ohaus.

Saulostomus felschei Ohaus, 1904, *Stett. ent. Ztg.*, 65:156.

The following is a free translation from the German description:

"In appearance like a small metallic *Amblyterus cicatricosus* but differing in having simple claws on all legs, and in the structure of its mouthparts. Body cylindrical, slightly dilated posteriorly, considerably convex, dark reddish-brown ventrally, pronotum dark brassy green dorsally, less hairy than on ventral surface and legs, the hair long, reddish-yellow.

"Clypeus almost semicircular, evenly emarginate and with edge black, disc closely and coarsely wrinkled (also in frons), hair erect, head not glossy. Vertex more sparsely punctate and more shining. Mandibles more extended, the outer angles scarcely rounded, the distal tooth slightly so, basal tooth very small, only slightly pigmented. Last segment of maxillary palp long and spindle-shaped, apex truncate; chewing surface with sharp edges at sides and with 3 setae. Mentum more elongate, nearly square with rounded anterior angles, anterior margin slightly bent out.

"Pronotum strongly convex, slightly widened in middle, basolateral angles obtuse, anterolateral angles acute, slightly produced, surface closely punctate, the punctures bearing long yellow hairs. Scutellum with close fine punctures bearing long hairs at base, these becoming shorter posteriorly. Elytra glossy, slightly wrinkled, especially at sides, with long dense hair near apices.

"Pygidium finely wrinkled, glossy, with long dense hairs as on abdominal sternites; thorax and femora so densely clothed as to conceal their surfaces. Middle and hind tibiae bearing carinae with thorn-like ciliae, the surface posterior to these being strongly contracted. Fore tibiae with distal teeth very strongly developed, tarsi longer and more slender than in *villosus*, first segment almost twice as long as second. All claws simple.

"♂ length 12½, width 6 mm. New Holland."

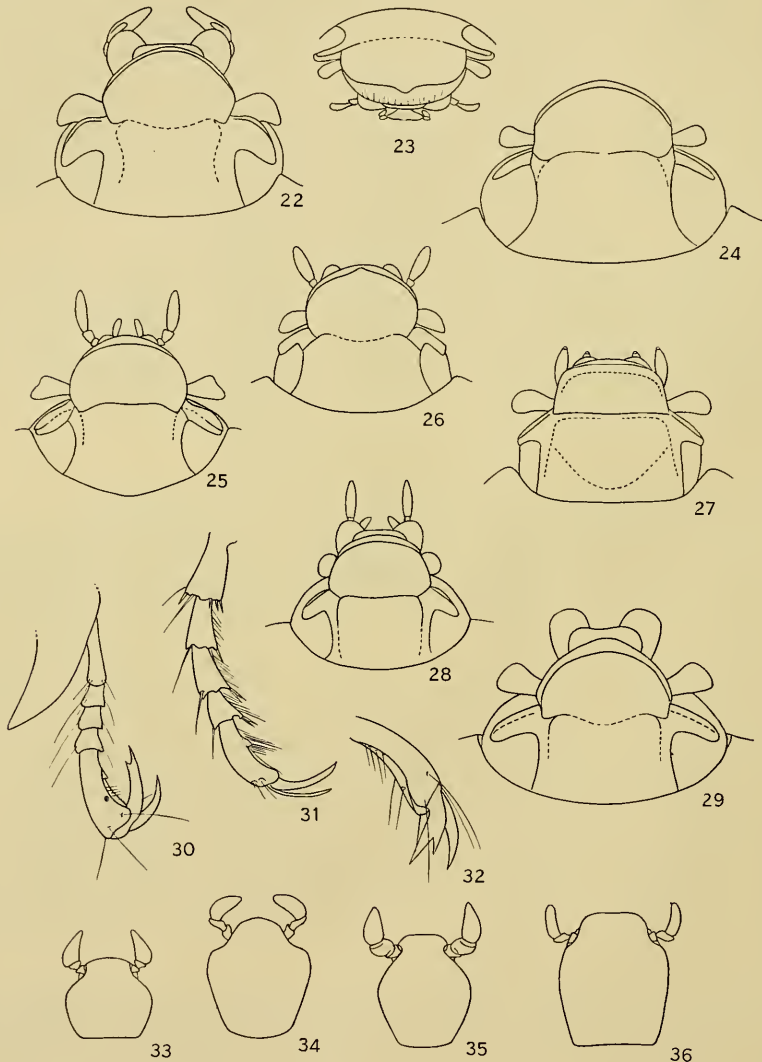
4. SAULOSTOMUS BRUNNEOVIRIDIS Lea.

(Text-figs. 12, 27.)

Saulostomus brunneoviridis Lea, 1920, *Proc. Linn. Soc. N.S.W.*, 44:743.

Lea's description of this species is based on a single male. As the writer has examined additional specimens, a more comprehensive description is provided.

♂: Length 13-15.5 mm., body with conspicuous decumbent, almost adpressed, white setae. Head and pronotum metallic green, becoming brownish-green at sides of latter, or a uniform deep reddish-brown with a green lustre; elytra deep brown with a variable greenish lustre. Mandibles just visible in front of clypeus, the latter (Text-fig. 27) short, transverse, trapezoidal, with coarse confluent punctation, its anterior truncated face glabrous; clypeofrontal suture distinct, transverse. Frons with erect short pale yellow setae on disc and ocular margins. Antennae (Text-fig. 12) with club setose



Text-figures 22-36.

22, *Eosaulostomus halei*, sp. nov.: paratype ♂, head, dorsal. 23, *E. excisus*, sp. nov.: paratype ♂, head, anterior. 24, *E. weiskei* (Ohs.): ♂, head, dorsal. 25, *E. minimus* (Lea): ♂, head, dorsal. 26, *E. excisus*, sp. nov.: paratype ♂, head, dorsal. 27, *Saulostomus brunneoviridis* Lea: type ♂, head, dorsal. 28, *Eosaulostomus collaris* (Blackb.): ♂, head, dorsal. 29, *E. norsemanae*, sp. nov.: paratype ♂, head, dorsal. 30, *Saulostomus villosus* Waterh.: ♀, fore tarsus (right). 31, *Eosaulostomus halei*, sp. nov.: paratype ♂, hind tarsus (right). 32, *E. weiskei* (Ohs.): cotype ♂, claws of left fore tarsus of cotype. 33, *E. excisus*, sp. nov.: paratype ♂, mentum. 34, *E. norsemanae*, sp. nov.: paratype ♂, mentum. 35, *E. halei*, sp. nov.: ♂, paratype, mentum. 36, *E. weiskei* (Ohs.): ♂, mentum.

only on median zone of inner face, elsewhere smooth and shining, equal to or slightly shorter than shaft.

Pronotum widest on anterior half, basolateral angles well defined, basal ridge usually obsolete in middle, anterior ridge thickened; disc with strongly impressed but not very numerous punctures, these bearing decumbent white setae except on median longitudinal third which bears a weakly impressed line. Scutellum with white setae at base, disc smooth, with a variable submarginal garland of punctures. Elytra lacking distinct striae, surface irregular, with semidecumbent white setae borne in shallow punctures; epipleurae with fine membranous border and with pale yellowish-brown setae extending to apices of elytra. Fore tibiae stout, with segment 5 considerably shorter than segments 1-4 together; claws long, slender and unequal. Hind legs slender; tibiae bicarinate, bearing short sharp ciliae, spurs blunt and tapering; tarsus with segment 5 the longest and strongly notched on lower surface; claws, when retracted, extending to mid-point of segment 4.

Abdominal sternites with transverse rows of white setae. Pygidium flat, tapering, vertical, with setae patterned down mid-line, with sparse long pale yellowish-brown hairs on and behind apical ridge.

Material examined: Type ♂, Hunter R., N.S.W. (S. Aust. Mus.); 2 ♂♂, Upper Hunter (Aust. Mus.); 2 ♂♂, Hunter R.; 2 ♂♂, Murrurundi (Macleay Mus.).

Genus EOSAULOSTOMUS, gen. nov.

Type species, *Eosaulostomus excisus*, gen. et sp. nov.

Concolorous reddish-brown species of small to medium size (11-16 mm. in length), rarely with greenish tinge on pygidium. Mandibles simple, either exposed or concealed beneath rounded clypeus. Maxillae (Text-figs. 14, 15) with small untoothed galeae, palps slender and elongate; mentum variable (Text-figs. 33-36). Antennae 10-segmented, club at least as long as shaft, setose on inner face. Clypeus rounded, emarginate, with transverse clypeo-frontal suture. Pronotum low convex, glabrous. Elytra with poorly defined striae, intervals punctate; epipleurae with abundant lateral setae and membranous ventral border. Legs dynastoid; fore tibia with spurs reduced or lacking, lateral teeth strongly developed, not confined to its distal half; hind tibia bicarinate; tarsus with segments 3 and 4 armed with stout spines, 5 notched on middle of lower surface.

Eosaulostomus differs from *Saulostomus* in characters given in the key above; from *Clitopocha* Lea it differs in its quite characteristically Ruteline mouthparts, lack of elytral vestiture and much greater degree of claw asymmetry.

Key to the species of the genus *Eosaulostomus*, gen. nov.

1. Mandibles exposed beyond margin of clypeus; antennal club with inner face not wholly setose 2.
- Mandibles concealed beneath clypeus; antennal club with inner face wholly setose 5.
- 2(1). Clypeus smooth, shining, with shallow punctation; clypeofrontal suture obsolete in middle; mandibles and labrum only slightly exposed; pronotum with disc setose near anterolateral angles. Fore tibia (Text-fig. 16) not bearing small setae between teeth. Length 11-13 mm. S. Aust. 1. *excisus*, sp. nov.
- Clypeus rugulose, dull; clypeofrontal suture usually discernible or forming a distinct transverse ridge; mandibles and labrum strongly exposed. Fore tibiae bearing small setae between teeth. 3.
- 3(2). Antennal club with inner face setose only on extreme margin (Text-fig. 7). Pronotum evenly rounded at sides; fore tibia with teeth evenly spaced (Text-fig. 17). Length c. 11 mm. W. Aust. 2. *collaris* (Blackb.), comb. nov.
- Antennal club with setose zone occupying $\frac{1}{3}$ to more than $\frac{1}{2}$ width of segment 4.
- 4(3). Sides of pronotum not contracted behind anterolateral angles; setose area on inner face of antennal club confined to lateral third; fore tibial teeth unevenly spaced (Text-fig. 18); labrum concave (Text-fig. 29); scutellum coarsely punctate. Pygidium with sparse long hairs. Length 13-15 mm. W. Aust. 3. *norsemanae*, sp. nov.
- Sides of pronotum contracted behind anterolateral angles; setose area on inner face of antennal club occupying lateral $\frac{1}{2}$ to $\frac{2}{3}$; fore tibial teeth evenly spaced (Text-fig. 19); labrum transverse (Text-fig. 22); scutellum finely punctate. Pygidium with abundant long hairs. Length 11-14 mm. S. Aust. 4. *halei*, sp. nov.

- 5(1). Clypeus very flat, slightly emarginate anteriorly; clypeofrontal suture not impressed; antennal club exceptionally slender (Text-fig. 10); pronotum with basal ridge obsolete across middle. Length 14-16 mm. Qld. 5. *weiskei* (Ohaus), comb. nov.
 — Clypeus moderately concave, strongly emarginate at sides and front; clypeofrontal suture impressed, antennal club broad (Text-fig. 11); pronotum with basal ridge continuous. Length 13-16 mm. Qld. 6. *minicus* (Lea), comb. nov.

1. *EOSAULOSTOMUS EXCISUS*, sp. nov.

(Text-figs. 1, 6, 16, 23, 26, 33.)

♂: Concolorous reddish-brown species, 11-13 mm. in length. Thorax, legs and abdominal sternites with very abundant long yellow hairs. Antennae setose on half of inner face of club (Text-fig. 6) and on segments 1-5. Apices of mandibles evenly rounded, labrum visible beyond clypeus, the latter rounded (Text-fig. 26), strongly emarginate and with a moderately deep truncated face; anterior margin of clypeus depressed or excised in middle (Text-fig. 23), disc with sparse, shallow punctation; clypeofrontal suture obsolete across middle. Ocular canthi well developed; frons coarsely and concentrically punctate. Maxillary palps slender, segments 3 and 4 conspicuously setose.

Pronotum low convex, widest in anterior half, anterolateral angles obtuse, basal angles rounded, basal ridge continuous or interrupted in middle; disc with shallow punctures and vague median impunctate stripe, the surface setose at sides, especially near anterolateral angles, rarely across anterior margin. Scutellum with exposed portion glabrous on posterior half. Elytra with discernible striae, surface shining. Fore tibia (Text-fig. 16) slender, acutely tridentate, lacking setae between the evenly spaced teeth. Tarsus slender, with segment 5 longer than segment 1. Hind tibia bicarinate, intercarinal regions glabrous. Ciliae short and closely set, spurs slender, tapering. Hind tarsus with segment 1 equal to or longer than segment 5, slightly dilated.

Pygidium moderately convex, abundantly setose. Genitalia as in Text-figure 1.

Types: Holotype ♂ and 11 paratype ♂♂, Reevesby Is., Sir Joseph Banks Group, S. Aust., coll. J. Clark (McCoy Soc. Expedition, Dec. 1936-Jan. 1937). (National Mus., Melbourne); 5 paratype ♂♂, Port Noarlunga, S. Aust., C. J. Hackett (S. Aust. Mus.). (7 Paratypes retained for Division of Entomology Museum, C.S.I.R.O., Canberra, and for distribution to British Museum, W. Australian Museum and Australian Museum, Sydney.)

2. *EOSAULOSTOMUS COLLARIS* (Blackburn), comb. nov.

(Text-figs. 2, 7, 17, 28.)

Aneurystypus collaris Blackb., 1892, Proc. Linn. Soc. N.S.W., (11) 7:286.—*Saulostomus collaris* (Blackb.), Blackb., 1909, Trans. R. Soc. S. Aust., 33:80; Carne, 1954, Proc. R. ent. Soc. (B), 23:36.

This species is closely related to *excisus*, differing in the following respects: antennae with setiferous zone much less extensive, rarely occupying more than quarter of inner face of club (Text-fig. 7); mandibles and labrum more exposed (Text-fig. 28), the latter rather truncated. Free margin of clypeus not depressed or excised in middle, disc finely wrinkled; clypeofrontal ridge distinct.

Pronotum with sides evenly rounded, quite glabrous dorsally; elytral punctures finer; fore tibial teeth (Text-fig. 17) less acute, the distal tooth less produced; tarsus more slender. ♂ genitalia as in Text-figure 2.

Type locality: Eyre's Sandy Patch, W.A. (on Bight near S. Aust. border).

Type in British Museum.

Material examined: ♂, Eyre's S.P. (in Blackburn's handwriting); 3 ♂♂, Eucla, 3 ♂♂, S. Aust. (S. Aust. Mus.).

3. *EOSAULOSTOMUS NORSEMANAE*, sp. nov.

(Text-figs. 3, 8, 18, 29, 34.)

♂: Concolorous reddish-brown species, 13-15 mm. in length. Closely related to *E. halei*, sp. nov., differing in the following respects: antennal club (Text-fig. 8) longer than shaft, with setose zone occupying lateral third of inner face of club; labrum

markedly concave in outline; clypeus (Text-fig. 29) rounded from extreme base, disc rather depressed; clypeofrontal ridge distinct, transverse.

Pronotum with sides evenly rounded. Scutellum with distinct, strongly impressed punctures smaller than those of elytra; fore tibia (Text-fig. 18) with distal tooth more produced. Fore tarsus with segments 1 and 5 of equal length; hind tibia with intercarinal regions heavily punctate, spurs acute; pygidium with punctures more conspicuous, transversely distorted and arranged somewhat concentrically. ♂ genitalia as in Text-figure 3.

Types: Holotype ♂ and 8 paratype ♂♂, Norseman, 1.07; 2 paratype ♂♂, Norseman, 11.05, L. Vincent. (National Mus., Melbourne.) (6 Paratypes retained for Division of Entomology Museum, C.S.I.R.O., Canberra, and for distribution to British Museum, S. Aust. Museum, W. Aust. Museum, and Australian Museum, Sydney.)

Norseman is a small town situated approximately 110 m. S. of Kalgoorlie, W. Aust.

4. *EOSAULOSTOMUS HALEI*, sp. nov.
(Text-figs. 9, 15, 19, 22, 31, 35.)

♂: Concolorous reddish-brown species, with edges of tibiae, mandibles, clypeus etc. black, 11–14 mm. in length. Coxae, abdomen and pygidium clothed in long brownish-yellow hairs.

Antennal club (Text-fig. 9) longer than shaft, lateral half to two-thirds of inner face of club and segments 1–4 setose. Mandibles and labrum strongly exposed, the latter truncate or very slightly concave in outline. Clypeus (Text-fig. 22) with sides straight, parallel or more often diverging slightly at base, then rounded; disc flat, emarginate, finely wrinkled; anterior truncated face coarsely punctate. Ocular canthi angulate; clypeofrontal ridge elevated, trisinate; frons concentrically rugose.

Pronotum glabrous, widest in anterior half, anterolateral angles not acute, basal ridge continuous; disc low convex, with large but shallow punctures becoming confluent at sides, with a weakly impressed median line impunctate on posterior two-thirds, and with slight depressions on either side behind anterior margin. Scutellum almost impunctate on exposed portion. Elytra with surface slightly microreticulate, punctures minute. Fore tibia (Text-fig. 19) moderately strongly tridentate, the teeth evenly spaced, spur lacking; tarsus with segment 1 much shorter than segment 5. Hind tibia with intercarinal regions punctate, slightly setose; ciliae sharp and closely set, spurs blunt. Tarsus (Text-fig. 31) with segments 1 and 5 equal in length.

Types: Holotype ♂ and 3 paratype ♂♂, Owiendana, N. Flinders Range, Hale and Tindale (S. Aust. Museum). (2 paratypes retained for British Museum and Division of Entomology Museum, C.S.I.R.O., Canberra.)

5. *EOSAULOSTOMUS WEISKEI* (Ohaus), comb. nov.
(Text-figs. 4, 10, 24, 35, 36.)

Saulostomus weiskei Ohaus, 1904, *Stett. ent. Ztg.*, 65: 157.

Concolorous reddish-brown species, 14–16 mm. in length. Coxae and abdomen with dense brownish-yellow hairs.

♂: Labrum concealed, apices of mandibles just visible in front of broad strongly rounded clypeus, the latter (Text-fig. 24) with short glabrous truncated face, sides weakly emarginate. Clypeofrontal suture subobsolete across middle, curved somewhat anteriorly; disc of clypeus confluent punctate, frons less heavily so. Ocular canthi slender; antennal club as in Text-figure 10.

Pronotum broadest in anterior half, low convex; shining; anterolateral angles blunt, anterior ridge thickened in middle, basal ridge obsolete across median third, disc sparsely and finely punctate, with a slightly depressed impunctate median stripe. Scutellum with patches of fine punctures at sides. Elytral disc with irregular striae of small lightly impressed punctures. Fore tibia (Text-fig. 20) rather strongly tridentate, spurs extremely small; tarsus elongate, segment 1 somewhat longer than segment 5. Hind legs slender: tibia with large setiferous intercarinal punctures, ciliae small, fine and closely set, spurs short and tapering; tarsus with segment 1 equal to or slightly shorter than segment 5.

Pygidium slightly convex, with fine somewhat concentrically arranged irregular punctures, and numerous small fine decumbent setae on disc and with longer yellowish-brown hairs behind apical ridge; the latter itself setose. ♂ genitalia as in Text-figure 4.

♀: Eyes smaller than those of ♂, antennae smaller although with club equal in length to shaft. Vestiture of abdomen, thorax and legs much reduced, pygidium bearing only sparse short setae. Middle and hind tibiae without intercarinal setae; tibial spurs very short and blunt.

Ohaus refers to sparse hairs being borne on the head, and to the pygidium sometimes having a weak coppery sheen. Neither of these characters is discernible on any of the 5 examples seen. He also states that the anterior claws of the ♂ are toothed, but in the 4 ♂♂ examined, only the right tarsus (Text-fig. 32) of a cotype has a claw showing such a structure, the left claw and those of the other ♂♂ examined being quite smooth and tapering.

Type locality: North Queensland.

Type: location unknown.

Material examined: ♂, Ravenshoe, N.Q., March 1921 (S.A. Mus.); cotype ♂, N. Qld., E. Weiske; N. Qld., comp. with type, K. M. Heller, 1914; Australia; Herberton, N.Q., F. P. Dodd. 1.11.1911 (Brit. Mus.).

6. EOSAULOSTOMUS MINICUS (Lea), comb. nov.

(Text-figs. 5, 11, 25.)

Saulostomus minicus Lea, 1919, *Trans. R. Soc. S. Aust.*, 43: 247.

♂: Concolorous reddish-brown species, 13–16 mm. in length. Thorax, legs and abdomen with abundant long yellowish hair. Mandibles almost quite concealed beneath clypeus, the latter (Text-fig. 25) strongly and evenly rounded, strongly emarginate, with the disc flat and coarsely, evenly punctate, clypeofrontal suture not impressed, transverse or somewhat anteriorly arcuate. Ocular canthi well developed. Antennae with club (Text-fig. 11) setose over entire inner face and longer than shaft.

Pronotum highly transverse, anterolateral angles acute, sides evenly rounded, basal ridge continuous, disc glabrous, abundantly punctate, confluent so at sides but sparsely so along median line. Scutellum punctate, glabrous on exposed portion; elytra with discernible striae, surface shining. Fore tibia strongly tridentate, spurs lacking, teeth evenly spaced; tarsus slender, with segments 1 and 5 equal in length. Hind tibia glabrous on intercarinal regions, but setose proximal of basal carina; ciliae slender and sharp, spurs short, slender and blunt; tarsus with segment 1 equal to or shorter than segment 5. ♂ genitalia as in Text-figure 5.

Type locality: Cunnamulla, Qld.

Type: in S. Aust. Museum.

Material examined: cotype ♂, Cunnamulla, Queensld., H. H. Hardcastle (Brit. Mus.); 2 ♂♂, Cunnamulla, H. Hardcastle (Division of Entomology Museum, C.S.I.R.O., Canberra); 2 ♂♂, Cunnamulla, H.H. (S. Aust. Mus.).

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References.

- BLACKBURN, T., 1909.—*Trans. R. Soc. S. Aust.*, 33: 80.
 LEA, A. M., 1919.—*Trans. R. Soc. S. Aust.*, 43: 247.
 ———, 1920.—*Proc. Linn. Soc. N.S.W.*, 44: 743.
 OHAUS, F., 1904.—*Stett. ent. Ztg.*, 65: 157.
 ———, 1935.—*Deutsch. ent. Ztg.*: 126.
 WATERHOUSE, C. O., 1878.—*Trans. ent. Soc. Lond.*: 225.